

REMARKS

Reconsideration and withdrawal of the rejections set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Claims 1, 4-12 and 15-22 remain pending in the application, with Claims 1, 4, 7, 12, 15 and 18 being independent and having been amended herein.

Claims 1, 7-9, 12 and 18-20 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,575,549 (Silverbrook). Claims 7 and 18 were rejected under § 102 as being anticipated by U.S. Patent No. 6,481,816 (Oyen). Claims 10 and 21 were rejected under 35 U.S.C. § 103 as being unpatentable over Silverbrook in view of U.S. Patent No. 5,929,875 (Su et al.). Claims 11 and 22 were rejected under 35 U.S.C. § 103 as being unpatentable over Silverbrook in view of Oyen. Claims 4-6 and 15-17 were rejected under 35 U.S.C. § 103 as being unpatentable over Oyen in view of U.S. Patent No. 6,278,469 (Bland et al.). These rejections are respectfully traversed.

Silverbrook describes a method that identifies parts of an image that will not be printed due to device failure and shifts ink dots sideways or lengthways to adjacent rows or columns so as to lessen the visual effect of failure to print at the original location.

Silverbrook describes that the diagnostic systems of the printer can detect when a nozzle is not functioning correctly. While Silverbrook does not disclose using an abnormal nozzle to compensate for another abnormal nozzle, by the same token, Silverbrook does not disclose how to effect ejection failure compensation if two adjacent nozzles have failed.

Applicant respectfully submit that it would not have been obvious to one of ordinary skill in the art to add printing data of an abnormal nozzle to printing data corresponding to a neighboring nozzle based on a landing state of ink ejected from the neighboring nozzle, with the landing state being a landing state of ink ejected from the neighboring nozzles and is obtained from at least one of information about deviation of a landing position of ink on the printing medium from a normal landing position and information about a diameter of a dot formed by ink landed on the printing medium, as is recited in independent Claims 1 and 12.

Silverbrook is also not believed to disclose or suggest, when adding printing data corresponding to the abnormal nozzle to the neighboring nozzles, improving a printing resolution of the printing head by increasing an ejecting frequency of ink, as is recited in independent Claims 7 and 18.

That is, for example, although it appears in Figure 3 of Silverbrook that five dots have been added in place of dots 16, 18, 20 and 22 from Figure 2, the dot at column I, row 7 is not believed to have been added. Note the detailed description at column 3, lines 38-44. Because the number of missing dots is replaced with an equal number, the resolution does not change.

Thus, Silverbrook fails to disclose or suggest important features of the present invention recited in independent Claims 1, 7, 12 and 18.

Oyen relates to a method of printing a substrate with a matrix printer. In the event of a breakdown of an image-forming element, the information of that pixel is

transferred to an addressable position in the vicinity of an associated pixel. However, Oyen does not determine a ratio of printing data corresponding to an abnormal nozzle to be added to printing data corresponding to neighboring nozzles based on landing states of the neighboring nozzles, with the landing state being a landing state of ink ejected from the neighboring nozzles, and obtained from at least one of information about deviation of a landing position of ink on the printing medium from a normal landing position and information about a diameter of a dot formed by ink landed on the printing medium, as is recited in independent Claims 4 and 15.

Bland et al. describes an ink jet printer and method that tests ink drop output of printhead nozzles and then defines a print mask that enables deposition of more ink from higher quality nozzles and less ink from lower quality nozzles. In particular, Bland et al. enables depositing in some rows relatively less ink from lower print quality nozzles and more ink from higher print quality nozzles. However, as discussed previously, Bland et al. does not describe adding printing data corresponding to an abnormal nozzle to printing data corresponding to neighboring nozzles. Accordingly, even if the teachings of Bland et al. were incorporated into Oyen, the assignment of more ink to higher quality nozzles and less ink to lower quality nozzles would be applied to the nozzles overall, but would not be applied in switching information from an abnormal nozzle to neighboring nozzles.

Oyen and Bland et al., whether taken individually or in combination, are not believed to disclose or suggest important features of the present invention recited in independent Claims 4 and 15.

Thus, independent Claims 1, 4, 7, 12, 15 and 18 are patentable over the citations of record. Reconsideration and withdrawal of the §§ 102 and 103 rejections are requested.

For the foregoing reasons, Applicants respectfully submit that independent Claims 1, 4, 7, 12, 15 and 18 are patentable. Dependent Claims 5, 6, 8-11, 16, 17 and 19-22 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims. Individual consideration of the dependent claims is requested.

This Amendment After Final Rejection is an earnest attempt to advance prosecution and reduce the number of issues, and is believed to clearly place this application in condition for allowance. This Amendment was not earlier presented because Applicants earnestly believed that the prior Amendment placed the subject application in condition for allowance. Accordingly, entry of this Amendment under 37 CFR 1.116 is respectfully requested.

Applicants submit that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the objections and rejections set forth in the above-noted Office Action, and an early Notice of Allowability are requested.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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